1. A method of performing a chemical reaction, said method comprising:

a) providing a sample in an applicator,

b) applying electromagnetic radiation to the sample in form of a first shaped pulse and characterising a reflected pulse from the applicator by performing a mathematical operation so as to obtain a first reflected spectrum,

c) changing at least one of a physical and chemical property of the sample,

d) applying electromagnetic radiation to the sample in form of a second shaped pulse and characterising a reflected pulse from the applicator by performing a mathematical operation so as to obtain a second reflected spectrum,

e) repeating step c) and d) until a difference between the first and second reflected spectra calculated as the mathematical difference between the first and second spectra is within a given range.

2. A method according to claim 1, wherein the mathematical operation for obtaining the first and second reflection spectra includes a Fourier Transformation.

3. A method according to claim 1, wherein the reaction is conducted in an apparatus including at least one generator for generating waves of electromagnetic radiation, each of said at least one generators being capable of generating electromagnetic radiation at at least one frequency, at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a sample in the at least one applicator.

4. A method of performing a plurality of chemical reactions simultaneously, said method comprising:

a) providing a first sample into a first applicator,

b) providing a second sample into a second applicator,

c) applying electromagnetic radiation to the first sample in the first applicator from a first generator, the first generator being capable of generating electromagnetic radiation at a plurality of frequencies,

d) applying electromagnetic radiation to the second sample in the second applicator from a second generator, the second generator being capable of generating electromagnetic radiation at a plurality of frequencies, and

e) individually controlling the electromagnetic radiation applied to the first and second applicator by individually and independently controlling the first and second generator in response to control signals from the first and second applicators.

5. A method according to claim 4, wherein the applied electromagnetic radiation is within the range of 300 MHz-300 GHz.

6. A method according to claim 4, wherein the electromagnetic radiation applied to the first and second sample has essentially the same frequency and essentially the same power level so as to expose the first and second sample to essentially the same conditions.

7. A method according to claim 4, wherein the first and second samples are PCR mixtures.

8. A method according to claim 4, wherein the electromagnetic radiation is applied to the samples in cycles of at least two steps where the samples are cooled at least during a part of each cycle.

9. A method according to claim 4, wherein the reaction is conducted in an apparatus including at least one generator for generating waves of electromagnetic radiation, each of said at least one generators being capable of generating electromagnetic radiation at at least one frequency, at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a sample in the at least one applicator.

10. A method for performing a plurality of chemical reactions simultaneously or sequentially, said method comprising:

a) providing a first sample into a first applicator,

b) providing a second sample into a second applicator, and

c) applying electromagnetic radiation to the first and second samples simultaneously or sequentially for a period of time, the electromagnetic radiation having a frequency in the range of 300 MHz-300 GHz.

11. A method according to claim 10, wherein the electromagnetic radiation is provided specifically and independently to each of the samples.

12. A method according to claim 10, wherein the applied electromagnetic radiation includes one or more pulses.

13. A method according to claim 10, wherein each sample is a PCR mixture.

14. A method according to claim 10, wherein the electromagnetic radiation is applied in cycles of at least two steps where the samples are cooled at least during a part of each cycle.

15. A method according to claim 10, wherein the electromagnetic radiation is provided by an apparatus for providing electromagnetic radiation including:

a) at least one generator for generating waves of electromagnetic radiation, each of said at lest one generators being capable of generating electromagnetic radiation at least one frequency,

b) at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and

c) a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a sample in on at least one applicators.

16. A method for performing a chemical reaction, said method comprising:

a) providing a sample in an applicator,

b) applying electromagnetic radiation to the sample for a first period of time at a first level of power and varying the frequency of the electromagnetic radiation between two values and with a given resolution, and determining a reflection factor of electromagnetic radiation from the sample at at least two of the frequencies covered by the range of the two values by determining the level of a feed-back signal, thereby obtaining a first set of reflection factors,

c) changing at least one of the physical and chemical properties of the sample,

d) applying electromagnetic radiation to the applicator at a second level of power and varying the frequency of the electromagnetic radiation between two values and with a given resolution, the range defined by the values being included in the range defined by the values in step b), and determining a reflection factor of electromagnetic radiation from the sample at at least two of the frequencies covered by the range of the two values by determining the level of the feed-back signal, thereby obtaining a second set of reflection factors, and

e) repeating step c) and d) until the difference in reflection factors calculated as the mathematical difference between the frequencies associated with the first and second set of reflection factors is within a given range.

17. A method for performing a chemical reaction, said method comprising:

a) providing a sample in an applicator,

b) applying electromagnetic radiation to the sample, the electromagnetic radiation having a starting frequency,

c) varying the frequency of the applied electromagnetic radiation between two values and with a given resolution,

d) determining a reflection factor of electromagnetic radiation from the sample by determining a level of a feed-back signal during at least part of the varying of the frequency of the electromagnetic radiation, and

e) determining, from the level of the feed-back signal, the frequency of the electromagnetic radiation wherein the reflection factor is within a given range.

18. A method for performing a chemical reaction, said method comprising:

a) providing a sample in an applicator,

b) applying electromagnetic radiation to the sample, the electromagnetic radiation having a starting frequency,

c) varying the frequency of the electromagnetic radiation incrementally around the starting frequency,

d) determining a reflection factor of electromagnetic radiation from the sample by determining a level of a feed-back signal at the starting frequency, at frequency incrementally lower than the starting frequency and at a frequency incrementally higher than the starting frequency,

e) repeating step b) and d) until the reflection factor is at a minimum.

19. A method for performing a chemical reaction, said method comprising:

a) providing a sample in an applicator,

b) applying electromagnetic radiation to the sample, the electromagnetic radiation having a starting frequency,

c) varying the frequency of the electromagnetic radiation incrementally around the starting frequency,

d) determining a reflection factor of electromagnetic radiation from the

sample by determining a level of a feed-back signal at the starting frequency, at a frequency incrementally lower than the starting frequency and a frequency incremental higher than the starting frequency,

e) comparing the determined reflection factor with a reflection factor,

f) adjusting the starting frequency to a frequency so that the determined reflection factor is within a range around the reflection factor, and

g) repeating step c) to f) as often as desirable.

20. A method according to claim 16, wherein the starting frequency is in the range of 300 MHz-300GHz.

21. A method according to claim 17, wherein the starting frequency is in the range of 300 MHz-300GHz.

22. A method according to claim 18, wherein the starting frequency is in the range of 300 MHz-300GHz.

23. A method according to claim 19, wherein the starting frequency is in the range of 300 MHz-300GHz.

24. A method according to claim 16, wherein the values between which the frequency of the electromagnetic field is varied are in the range of 300 MHz-300 GHz, such as within the range 0,5-3 GHz or within the range 50-100 GHz.

25. A method according to claim 17, wherein the values between which the

frequency of the electromagnetic field is varied are in the range of 300 MHz-300 GHz, such as within the range 0,5-3 GHz or within the range 50-100 GHz.

26. A method according to claim 18, wherein the values between which the frequency of the electromagnetic field is varied are in the range of 300 MHz-300 GHz, such as within the range 0,5-3 GHz or within the range 50-100 GHz.

27. A method according to claim 19, wherein the values between which the frequency of the electromagnetic field is varied are in the range of 300 MHz-300 GHz, such as within the range 0,5-3 GHz or within the range 50-100 GHz.

28. A method according to claim 20, wherein the values between which the frequency of the electromagnetic field is varied are in the range of 300 MHz-300 GHz, such as within the range 0,5-3 GHz or within the range 50-100 GHz.

29. A method according to claim 16, wherein the reaction is conducted in an apparatus according to an apparatus for providing electromagnetic radiation comprising:

a) at least one generator for generating waves of electromagnetic radiation, each of said at lest one generators being capable of generating electromagnetic radiation at least one frequency,

b) at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and

c) a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a

sample in on at least one applicators.

30. A method according to claim 17, wherein the reaction is conducted in an apparatus according to an apparatus for providing electromagnetic radiation comprising:

a) at least one generator for generating waves of electromagnetic radiation, each of said at lest one generators being capable of generating electromagnetic radiation at least one frequency,

b) at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and

c) a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a sample in on at least one applicators.

31. A method according to claim 18, wherein the reaction is conducted in an apparatus for providing electromagnetic radiation comprising:

a) at least one generator for generating waves of electromagnetic radiation, each of said at lest one generators being capable of generating electromagnetic radiation at least one frequency,

b) at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and

c) a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a sample in on at least one applicators.

32. A method according to claim 19, wherein the reaction is conducted in an apparatus for providing electromagnetic radiation comprising:

a) at least one generator for generating waves of electromagnetic radiation, each of said at lest one generators being capable of generating electromagnetic radiation at least one frequency,

b) at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and

c) a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a sample in on at least one applicators.

33. A method according to claim 20, wherein the reaction is conducted in an apparatus for providing electromagnetic radiation comprising:

a) at least one generator for generating waves of electromagnetic radiation, each of said at lest one generators being capable of generating electromagnetic radiation at least one frequency,

b) at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and

c) a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a sample in on at least one applicators.

34. A method according to claim 24, wherein the reaction is conducted in an apparatus for providing electromagnetic radiation comprising:

a) at least one generator for generating waves of electromagnetic

radiation, each of said at lest one generators being capable of generating electromagnetic radiation at least one frequency,

b) at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and

c) a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a sample in on at least one applicators.

35. A method for performing a chemical reaction, said method comprising:

a) providing a sample in an applicator,

b) applying electromagnetic radiation to the sample in form of a first pulse with a shape and characterising a reflected pulse from the applicator by performing a mathematical operation so as to obtain a first reflected spectrum,

c) changing at least one of the physical and chemical properties of the sample,

d) applying electromagnetic radiation to the sample in form of a second pulse with a shape and characterising a reflected pulse from the applicator by performing a mathematical operation so as to obtain a second reflected spectrum,

e) repeating step c) and d) until the difference between the first and second reflected spectra calculated as the mathematical difference between the first and second spectra is within a given range.

36. A method according to claim 35, wherein the mathematical operation for obtaining the first and second reflection spectra includes a Fourier Transformation.

37. A method according to claim 35, wherein the reaction is conducted in an apparatus for providing electromagnetic radiation comprising:

a) at least one generator for generating waves of electromagnetic radiation, each of said at lest one generators being capable of generating electromagnetic radiation at least one frequency,

b) at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, and

c) a controller for individually controlling each of said at least one generators in response to a control signal, the control signal reflecting the status of a sample in on at least one applicators.

38. The use of an apparatus for performing the method according to claim 10 for temperature cycling a PCR mixture.

39. The use according to claim 38 for performing a chemical reaction in a sample, wherein the frequency of the electromagnetic radiation applied to the sample in the applicator, the level of irradiated power and the period of applying the electromagnetic radiation is determined by values for the chemical reaction in question, such values being stored in a storage means associated with the control means.

40. The use according to claim 38, wherein corresponding data of frequency and reflection factor are stored in a memory for further processing.

41. The use according to claim 40, wherein further processing is performed in a neural network.

42. A kit for chemically reacting chemical species with a reagent optionally under the action of a catalyst, wherein the chemical reaction is performed in the apparatus according to claim 38, said kit comprising:

a) a sample holder comprising at least one of the reagent and the optional catalyst,

b) an electronic storage means including data concerning the chemical reaction between the chemical species and the reagent under the optional action of the catalyst, said electronic storage means and apparatus being adapted for retrieving the data from the storage means and processing said data so as to control the application of an electromagnetic radiation to said sample holder.

43. A kit for chemically reacting chemical species with a reagent according to claim 42, said kit further comprising instructions regarding addition of the chemical species to the sample holder.